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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/768,160

02/02/2004

Atsushi Kurokawa

6034

24956

7590

05/27/2004

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EXAMINER

MOTTOLA, STEVEN J

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 05/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/768,160	Applicant(s) <b>OK</b> KUROKAWA ET AL.	
	Examiner Steven J. Mottola	Art Unit 2817	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-17, 20-27, 29-32 is/are rejected.
- 7) ☒ Claim(s) 18, 19 and 28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

The disclosure is objected to because of the following informalities: the specification should be updated at page one to reflect the current status of the parent application.

Appropriate correction is required.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 15,17,20,21,23-27,29,30,32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffin et al.

Independent claims 15 and 26 will be treated first. Griffin et al. disclose in fig. 10 for instance an FET having a MES gate g so that the transistor may be read as the claimed MESFET. Note also that the device is referred to by Griffin et al. as a MESFET structure at col. 5, lines 59-60. It is formed so as to have a Schottky barrier (col. 4, line

50) as claimed, forward gate current by increasing the gate bias voltage being inherent in such an arrangement (but also see col. 3, lines 44-46 of Griffin et al.) and a gate bias voltage supplied by a source V<sub>gg</sub> and inductor L12 which may be read as the bias circuit claimed, the MES gate receiving a signal RF INPUT to be amplified superposed with the bias voltage as claimed, the difference between the claims and Griffin et al. being the specific bias voltage range claimed, greater than or equal to >65 volts, while Griffin et al. do not specify a certain voltage. However, it would have been obvious to set the gate bias V<sub>gg</sub> to bias the transistor according to the desired transistor characteristics such as breakdown voltage and channel current because Griffin et al. have suggested just this at col. 7, lines 17-20. Regarding claims 17 & 27, the applicant has stated that a direct transition type of material includes GaAs; this is the material preferably used by Griffin et al. (see col. 4, lines 35-36). Regarding claims 20-21 and 29-30, see lines 51-55 of col. 4 of Griffin et al.; at least some of the materials listed (such as titanium-tungsten) should have a work function as claimed. Regarding claims 23-25 and 32-34, the MESFET may be integrated with or separately from other components; see col. 8, lines 31-41 of Griffin et al. Note the matching circuits in figs. 10 & 13.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Griffin et al. in view of Peczalski.

The difference added by this claim is that the MESFET is stated to be enhancement or shallow depression type; this is not explicitly stated by Griffin et al. However, even if Griffin et al. prefer depletion mode, it would have been obvious to

substitute enhancement mode MESFETs because Peczalski has taught just such a substitution at col. 7, lines 21-35. The overall device is MESFET power amp utilizing the Schottky barrier effect (col. 5, line 67) so that the teaching is from analogous art.

Claims 22 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffin et al. in view of Smith.

The difference added by these claims is the specification of platinum or palladium as a gate electrode material; however, the use of such a material in the MESFET of Griffin et al. would have been obvious as Smith disclose the use of platinum in the context of a MESFET with a Schottky barrier at col. 18, lines 42-51.

Claims 18,19 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The gate bias circuit ripple filtering capacitor of these claims is not disclosed in the context claimed in the prior art of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven J. Mottola whose telephone number is 571-272-1766. The examiner can normally be reached on M-Th from 8 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal, can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



**Steven J. Mottola**  
Primary Examiner